L2 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:533814 CAPLUS
DOCUMENT NUMBER: 141:84630
TITLE: Construction and use of ligand-regulatable, catalytically active nucleic acids (RCANA)
INVENTOR(S): Ellington, Andrew D.; Hesselberth, Jay; Thompson, Kristin; Robertson, Michael P.; Sooter, Letha; Davidson, Eric; Cox, J. Colin; Riedel, Timothy; Wilson, Charles; Cload, Sharon T.; Keefe, Anthony D.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 74 pp., Cont.-in-part of U.S. Ser. No. 883,119.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 2004126882	A1	20040701	US 2002-254568		20020924
US 2003104520	A1	20030605	US 2001-883119		20010614
PRIORITY APPLN. INFO.:			US 2000-212097P	P	20000615
			US 2000-661658	A2	20000615
			US 2000-666870	A2	20000920
			US 2001-883119	A2	20010614
			US 2001-324715P	P	20010924

AB Compns. and methods are provided to make, isolate, characterize, and use regulatable, catalytically active nucleic acids (RCANA), which are a subclass of ribozymes wherein the activity is regulated by a ligand-binding moiety. RCANA are more robust than allosteric protein enzymes in several ways: (1) they can be selected in vitro, which facilitates the engineering of particular constructs; (2) the levels of catalytic modulation are much greater for RCANA than for protein enzymes; and (3) since RCANA are nucleic acids, they can potentially interact with the genetic machinery in ways that protein mols. may not. The present invention is directed to RCANA that transduce mol. recognition into catalysis. Methods are provided to generate and optimize RCANAs by using in vivo screens and in vitro selection. Also, RCANAs according to the invention can be used as regulatory elements to control the expression of one or more genes in a metabolic pathway. RCANAs can also be used as regulated selectable markers to create a selective pressure favoring (or disfavoring) production of a targeted bioproduct. Thus, a protein-dependent, regulatable, catalytically active nucleic acid is generated with an activity that is increased in a standard assay by 75,000-fold in the presence of its protein effector, tyrosyl-tRNA synthetase from Neurospora mitochondria, and not activated by non-cognate proteins including other tRNA synthetases. Similarly, a RCANA is created and selected with an activity that is increased by 3500-fold in the presence of hen egg white lysozyme. A third peptide-dependent RCANA is created and isolated with activity increased by 18,000-fold in the presence of the arginine-rich motif (ARM) from the HIV-1 Rev protein.

L2 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:435215 CAPLUS
DOCUMENT NUMBER: 139:32500
TITLE: Methods for selection and use of regulatable, catalytically active nucleic acids (RCANA) or aptazymes
INVENTOR(S): Ellington, Andrew D.; Hesselberth, Jay; Marshall, Kristin A.; Robertson, Michael P.; Sooter, Letha; Davidson, Eric; Cox, J. Colin; Reidel, Timothy
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 69 pp., Cont.-in-part of U.S.

Provisional Ser. No. 282,097.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 2003104520	A1	20030605	US 2001-883119		20010614
US 2004126882	A1	20040701	US 2002-254568		20020924
PRIORITY APPLN. INFO.:			US 2000-212097P	P	20000615
			US 2000-661658	A2	20000615
			US 2000-666870	A2	20000920
			US 2001-883119	A2	20010614
			US 2001-324715P	P	20010924

AB Compns. and methods are provided to make, isolate, characterize and use regulatable, catalytically active nucleic acids (RCANA). RCANA may be used for regulating gene expression and in assays to detect the presence of ligands or to detect activation by an effector of an RCANA bound to a solid support such as a chip or multi-well plate. One example of the invention involves construction of an RCANA by PCR using primers from the P6 region of the Group I ribozyme, cloning of the RCANA or in vitro transcription followed by RNA purification, and demonstration of theophylline-dependent splicing activity towards the bacteriophage T4 gene td intron in vivo or in vitro. Regulatable ribozymes have been described, wherein the activity of the ribozyme is regulated by a ligand-binding moiety. Upon binding the ligand, the ribozyme activity on a target RNA is changed. Regulatable ribozymes have only been described for small mol. ligands such as organic or inorg. mols. Regulatable ribozymes that are controlled by proteins, peptides, or other macro-mols. Thus, the present invention is directed to RCANA that transduce mol. recognition into catalysis. Also disclosed are compns. and methods for automating the selection procedures of the present invention.

L2 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:261999 CAPLUS
DOCUMENT NUMBER: 138:282303
TITLE: Regulatable ribozymes and DNAzymes and their use in regulation of cellular product levels or screening for cells producing particular bioproducts
INVENTOR(S): Wilson, Charles; Cload, Sharon T.; Keefe, Anthony D.
PATENT ASSIGNEE(S): Archemix Corporation, USA
SOURCE: PCT Int. Appl., 128 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003027310	A2	20030403	WO 2002-US30458	20020924
WO 2003027310	A3	20030626		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-324715P P 20010924

AB Compns. and methods are provided to make, isolate, characterize and use regulatable, catalytically active nucleic acids (RCANA). The present invention is directed to RCANA that transduce mol. recognition into catalysis. Also, RCANAs according to the invention can be used as regulatory elements to control the expression of one or more genes in a metabolic pathway. RCANAs can also be used as regulated selectable markers to create a selective pressure favoring (or disfavoring) production of a targeted bioproduct. In addition, the RCANAs can be used to regulate the activity of a reporter gene in cells and thereby provide a means to screen a population of cells for a cell producing a desired bioproduct. Thus, a selection scheme to provide protein-regulatable ribozymes was developed and applied to tyrosyl-tRNA synthetase-regulated group I intron ND1 of Neurospora to produce hen egg white lysozyme-regulated ligase. This ribozyme exhibited a 3100-fold activation by lysozyme, ligating with a rate of 0.6 h-1 in the presence of lysozyme but only 0.0002 h-1 in its absence.

L2 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:924000 CAPLUS
DOCUMENT NUMBER: 136:66194
TITLE: Methods for selection and use of regulatable, catalytically active nucleic acids (RCANA) or aptazymes
INVENTOR(S): Ellington, Andrew D.; Hesselberth, Jay; Marshall, Kris; Robertson, Michael; Sooter, Letha; Davidson, Eric; Cox, J. Colin; Reidel, Timothy
PATENT ASSIGNEE(S): Board of Regents the University of Texas System, USA
SOURCE: PCT Int. Appl., 126 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001096559	A2	20011220	WO 2001-US19302	20010614
WO 2001096559	A3	20030710		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2412664	A1	20011220	CA 2001-2412664	20010614
AU 2001068481	A5	20011224	AU 2001-68481	20010614
EP 1364009	A2	20031126	EP 2001-946430	20010614
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004515219	T	20040527	JP 2002-510676	20010614

PRIORITY APPLN. INFO.: US 2000-212097P P 20000615
WO 2001-US19302 W 20010614

AB Compns. and methods are provided to make, isolate, characterize and use regulatable, catalytically active nucleic acids (RCANA). RCANA may be used for regulating gene expression and in assays to detect the presence of ligands or to detect activation by an effector of an RCANA bound to a solid support such as a chip or multi-well plate. Also disclosed are compns. and methods for automating the selection procedures of the present invention. In addition, the invention claims diagnostic and therapeutic

applications. One example of the invention involves construction of an RCANA by PCR using primers from the P6 region of the Group I ribozyme, cloning of the RCANA or in vitro transcription followed by RNA purification, and demonstration of theophylline-dependent splicing activity towards the bacteriophage T4 gene td intron in vivo or in vitro. As another example of the invention, an RCANA was isolated with an activity that was increased 75,000-fold in the presence of its protein effector, Neurospora crassa mitochondrial tyrosyl tRNA synthetase (Cyt18). This RCANA was selected from a pool of randomized sequences spanning the catalytic core of L1 ligase by selecting for the ability to ligate an oligonucleotide tag in the presence of the Cyt18 effector and affinity capture of the oligonucleotide tag. The in vitro selection can be automated by immobilization of targets on beads and high-stringency washes to remove non-binding species. Activity of another protein-dependent ribozyme was increased 3,500-fold in the presence of hen egg white lysozyme. The lysozyme-dependent ribozyme was also activated by turkey egg white lysozyme but not by T4 lysozyme and was inhibited by a lysozyme-specific RNA binding species. A peptide-dependent RCANA was isolated with an 18,000-fold increase in its activity in the presence of the arginine-rich motif (ARM) from the HIV-1 Rev protein but not the ARM from HTLV-I Rex protein.

L2 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:923983 CAPLUS
DOCUMENT NUMBER: 136:50286
TITLE: Allosterically regulated ribozymes
INVENTOR(S): Ellington, Andrew D.; Hesselberth, Jay; Marshall, Kris; Robertson, Michael; Sooter, Letha; Davidson, Eric; Cox, J. Colin; Reidel, Timothy
PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001096541	A2	20011220	WO 2001-US19119	20010615
WO 2001096541	A3	20020822		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2000-661658 A 20000615

AB Regulatable aptazymes are ribozymes that are allosterically regulated by an effector mol. Compns. and methods are provided to use regulatable aptazymes in assays to detect the presence of ligands or to detect activation of an aptazyme by an effector.

(FILE 'HOME' ENTERED AT 12:48:07 ON 26 JAN 2007)

FILE 'REGISTRY' ENTERED AT 12:48:14 ON 26 JAN 2007

L1 6 S GCCTGAGTATAAGGTGACTTATACTTGTAATCTATCTAAACGGGGAACCTCTCTAGTAGAC

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 12:48:50 ON 26 JAN 2007

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